

(19)



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(11)

EP 1 219 240 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
27.11.2002 Bulletin 2002/48

(51) Int Cl. 7: A61B 5/103, A61B 5/055

(43) Date of publication A2:
03.07.2002 Bulletin 2002/27

(21) Application number: 01310610.9

(22) Date of filing: 19.12.2001

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR

Designated Extension States:
AL LT LV MK RO SI

(30) Priority: 21.12.2000 US 742597

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(54) Ligament loading device

(57) A ligament loading device (50) is used in conjunction with an MRI apparatus to image damaged ligaments in the knee. The leg of a patient is strapped into a thigh harness (70) and a lower leg harness (74) with the knee lying over a point (72) in the imaging region of the imager. The thigh harness (70) is fixed, but the lower leg harness (74) rotates about a central pivot point (72) to select an angle for the leg. Pressure devices (84a, 84b) such as sacs or bellows apply pressure to the thigh in one direction transverse to the thigh. Pressure devic-

es (100a, 100b) apply pressure to the lower leg in an opposing direction transverse to the lower leg in order to move the bones of the knee apart to facilitate imaging of the ligaments. It is also possible to inspect and measure the movement of the bones using the device in conjunction with an MRI apparatus. A switch (108) selects between two pressure applying modes, both of which move the bones of the knee apart, but in opposite directions. Pressure is applied with a manual bulb (103) so that a diagnostician can physically feel the amount of pressure that is being applied to the patient's knee.

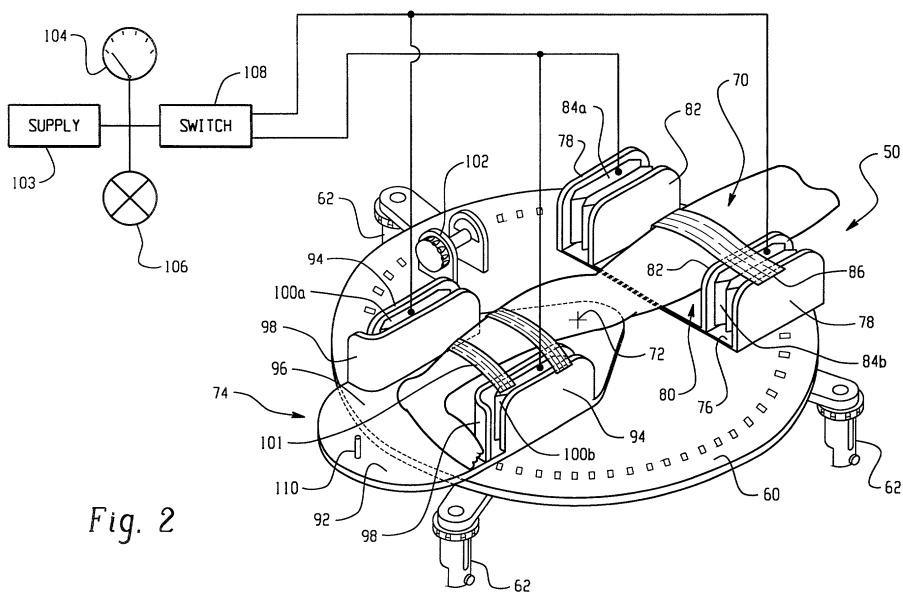


Fig. 2



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PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention EP 01 31 0610
shall be considered, for the purposes of subsequent
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 5 743 264 A (BONUTTI PETER M) 28 April 1998 (1998-04-28)	1-5,7, 13-20	A61B5/103 A61B5/055
A	* column 13, line 47 - column 16, line 5; figures 8-11,37-40 * * column 5, line 33 - column 9, line 36 * * column 1, line 45 - column 2, line 47 *	6	
X	DE 39 25 014 A (GRIFKA JOACHIM DR MED) 31 January 1991 (1991-01-31)	1-6	
A	* column 3, line 39 - column 5, line 68 * * column 8, line 18 - column 13, line 20; figures 1-3 *	7,13-20	
X	US 5 662 121 A (ZUCKER IVAN) 2 September 1997 (1997-09-02)	13	
A	* column 2, line 39 - column 5, line 59; figures 1,2,4 *	1-5,7, 14,17-20	
X	US 5 427 116 A (NOONE MICHAEL) 27 June 1995 (1995-06-27)	13	
A	* column 1, line 40 - line 65 * * column 3, line 34 - column 4, line 64; figure 2 *	1,7,14	
		-/-	
INCOMPLETE SEARCH			
<p>The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.</p> <p>Claims searched completely :</p> <p>Claims searched incompletely :</p> <p>Claims not searched :</p> <p>8-12</p> <p>Reason for the limitation of the search:</p> <p>Article 52 (4) EPC - Diagnostic method practised on the human or animal body</p>			
Place of search		Date of completion of the search	
THE HAGUE		1 October 2002	
Examiner		Neef, T	
CATEGORY OF CITED DOCUMENTS			
<p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			



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DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	US 5 445 152 A (BELL RODNEY E ET AL) 29 August 1995 (1995-08-29) * column 1, line 34 – line 58; figures 3,5,6 *	1,7,13	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 01 31 0610

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

01-10-2002

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 5743264	A	28-04-1998	US	5577503 A	26-11-1996
			US	5349956 A	27-09-1994
			US	5640958 A	24-06-1997
			US	5562094 A	08-10-1996
			US	5542423 A	06-08-1996
			US	6141579 A	31-10-2000
			US	5329924 A	19-07-1994
			US	5343580 A	06-09-1994
DE 3925014	A	31-01-1991	DE	3925014 A1	31-01-1991
US 5662121	A	02-09-1997		NONE	
US 5427116	A	27-06-1995		NONE	
US 5445152	A	29-08-1995	US	5442858 A	22-08-1995